

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
RHODE ISLAND**

HEAVY USE AREA PROTECTION

(Ac.)

CODE 561

DEFINITION

The stabilization of areas frequently and intensively used by people, animals or vehicles by establishing vegetative cover, by surfacing with suitable materials, and/or by installing needed structures.

PURPOSE

- Reduce soil erosion
- Improve water quality
- Improve air quality
- Improve aesthetics
- Improve livestock health

CONDITIONS WHERE PRACTICE APPLIES

On urban, suburban, agricultural (where livestock is not present), or other frequently and intensively used areas where an assessment indicates that treatment is required to address one or more resource concerns.

On agricultural land, where livestock is present and where the practice is a component of an approved comprehensive nutrient management plan (CNMP).

CRITERIA

General Criteria Applicable to All Purposes

Laws and Regulations. All Federal, state, and local laws, rules, and regulations, including local inland wetland agency regulations, governing the construction and use of this practice as well as setbacks from

wells, surface water and property boundaries shall be followed. Planned work shall comply with all federal, state, and local laws and permit conditions and requirements. **The landowner shall obtain all necessary permits prior to construction or any land clearing activities.**

Measures shall be taken to limit the generation of particulate matter.

Safety provisions shall be incorporated into the design of the heavy use area.

Separation Distances. Separation distances from residences and buildings, property lines, surface water bodies including wetlands, private wells or springs, and/or public wells shall be determined on a case by case basis in consultation with appropriate state or local regulatory agencies.

Use the following separation distances for preliminary planning purposes only.

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| Residences and businesses – Owner-Operator | 250 feet |
| Residences and businesses - Other | 500 feet |
| Property lines | 250 feet |
| Public Roads | 250 feet |
| Drinking Water Supply Lines | 150 feet |
| Surface water bodies | 250 feet |
| Private well or spring | 150 feet |
| Public water supply well | 500 feet |
| Above seasonal high water table | 24 in. |
| Depth to bedrock | 48 in.* |
| * May reduce with DEM concurrence if lined. | |

Design Load. The design load will be based on the type of traffic, (vehicular, animal, or

human) anticipated on the heavy use area. The minimum design load for areas that support vehicular traffic will be a wheel load of 4000 lbs.

Foundation. All site foundations shall be evaluated for soil moisture, permeability, texture and bearing strength in combination with the design load and anticipated frequency of use.

A six-inch (6") thick minimum base course of gravel, crushed stone, other suitable material and/or geotextile shall be provided on all sites with a need for increased load bearing strength, drainage, separation of material and soil reinforcement. Natural Resources Conservation Service (NRCS), National Engineering Handbook (NEH), Parts 642 and 643 (formerly, NEH, Section 20) and AASHTO M-288 (latest edition) provide guidance in quality specification and geotextile selection.

An impervious barrier shall be provided on sites with a porous foundation (high permeability rate), where there is a need to protect ground water from contamination.

Foundation preparation shall consist of removal and disposal of soil and other material that are not adequate to support the design loads.

Surface Treatment. The surface treatment shall meet the following criteria:

Bituminous Pavement. The thickness of the pavement course, the kind and size of aggregate, the type of proportioning of bituminous materials, and the mixing and placing of these materials shall be in accordance with Rhode Island Department of Transportation criteria for the expected loading. The minimum thickness of bituminous concrete pavement (base course plus wearing course) shall be three (3") inches.

Concrete. The quality and thickness of concrete and the spacing and size of reinforcing steel shall be appropriate for the expected loading. Slab design shall consider the required performance and the critical applied loads along with both the subgrade material and material resistance of the concrete slab. Where applied point loads are minimal and **liquid-tightness is not required**, such as barnyard and feedlot slabs subject

only to precipitation, and the subgrade is uniform and dense, the minimum concrete thickness shall be 5 inches and shall contain distributed reinforcing steel. The required area of such reinforcing steel shall be based on subgrade drag theory as discussed in American Concrete Institute, "Design of Slabs on Grade" (ACI 360R-92).

Use of fiber reinforcement in place of steel will not be allowed.

Durability. All concrete shall have a minimum compressive strength of 4,000 psi and a maximum water cement ratio (w/c) of 0.45. All reinforcing steel shall have a minimum strength of 60,000 psi.

Other Cementitious Materials. Soil cement, roller compacted concrete, and coal combustion by-products (flue gas desulphurization sludge and fly ash) may be used as surface material if designed and installed to withstand the anticipated loads and surface abrasion.

Other. Surfacing materials, such as cinders, tanbark, bark mulch, brick chips, shredded rubber and/or sawdust shall have a minimum layer thickness of three (3") inches.

Structures. All structures shall be designed according to appropriate NRCS standards and specifications or Engineering Handbook recommendations.

Sprays and Artificial Mulches. When utilizing sprays of asphalt, oil, plastic, manufactured mulches, and similar materials, the manufacturer's recommendations for application shall be incorporated into the design.

Drainage and Erosion Control. Provision shall be made for surface and subsurface drainage, as needed, and for disposal of runoff without causing erosion or water quality impairment. Provision shall be made to exclude unpolluted run-on water from the treatment area. All treatment areas shall be shaped to prevent ponding of water.

Vegetative Measures. Liming, fertilizing, soil preparation, seeding, mulching, sodding and vegetation management shall be according to the planned use and appropriate conservation practice standard in the local technical guide. If vegetation is not appropriate, other

measures shall be used to accomplish the intended purpose.

Additional Criteria for Areas Utilized by Livestock

The treated area shall extend an appropriate distance from facilities such as portable hay rings, water troughs, feeding troughs, mineral boxes and other facilities where livestock concentrations cause resource concerns.

Rhode Island NRCS standards 342, Critical Area Planting; 382, Fencing; 528A, Prescribed Grazing; 635, Wastewater Treatment Strip; or 472, Use Exclusion shall be used as companion practices, when needed to meet the intended purpose of the heavy use area protection.

Provisions shall be made to collect, store, utilize and/or treat manure accumulations and contaminated runoff in accordance with an approved CNMP.

Additional Criteria for Areas Utilized for Recreation

The treated area shall be conducive to the overall recreation area and aesthetically blend with the general landscape and surroundings.

Plants, landscaping timbers, traffic control measures, wooden walkways, etc. shall be evaluated for effectiveness, aesthetics and accessibility as covered by the Americans with Disabilities Act.

CONSIDERATIONS

For livestock operations, consider roofing the heavy use area to reduce or eliminate the volume of contaminated runoff.

When stabilizing heavily used areas consider adjoining land uses and the proximity to residences, utilities, cultural resource areas, wetlands or other environmentally sensitive areas, and areas of special scenic value.

For heavy use areas conducive to protection by vegetation, consideration must be given to the effect(s) of treading and/or miring. The vegetative species selected should tolerate and persist under heavy use conditions. If practicable, consider increasing the size of the area and/or establishing a rest/non-use period to allow plant recovery and increase vigor.

Heavy use area protection effects on the water budget, especially on volumes and rates of runoff, infiltration, and transpiration due to the installation of less pervious surfaces should be considered in the selection of surfacing materials.

The transport of sediments, nutrients, bacteria, organic matter from animal manures; oils, chemicals and particulate matter associated with vehicular traffic; and soluble and sediment-attached substances carried by runoff should be considered in selection of companion conservation practices.

Consider using additional air quality conservation practices such as Rhode Island NRCS Standards 380, Windbreak/Shelterbelt Establishment or 603, Herbaceous Wind Barriers to impede the transport of particulate matter offsite.

The size of heavy use areas utilized by livestock is dependent on the landowner's operation including type and number of animal, confinement periods, and/or the intended use. The size of treatment areas can range from 30 square feet per animal in partial-confinement to 400 square feet per animal in total confinement to 4000 or more square feet for animal exercise areas. Heavy use protection areas should be kept as small as practicable.

Heavy use areas used for short-term livestock containment may have surface treatments such as bark mulch, wood-fiber or other non-durable materials. In these cases, consider vegetating the affected area with a cover crop during non-use periods.

For areas with aggregate surfaces that will be frequently scraped, consideration should be given to the use of concrete or cementitious materials to lessen the recurring cost of aggregate replacement.

PLANS AND SPECIFICATIONS

Plans and specifications shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. Plans and specifications shall include construction plans, drawings, job sheets or other similar documents. These documents shall as a minimum, specify the requirements for

installing the practice and include the kind, quantity and quality of materials to be used.

To the extent practical, specifications shall conform to NRCS National Engineering Handbook Parts 642 and 643 (Section 20).

AS BUILT DRAWINGS

As built drawings shall be prepared showing all pertinent element and elevations as actually installed, and a copy shall be provided to the owner / operator upon construction completion.

OPERATION AND MAINTENANCE

An Operation and Maintenance (O&M) plan shall be prepared for, reviewed and signed by the landowner or operator. The plan shall specify that the treated areas and associated

practices are inspected annually and after significant storm events to identify repair and maintenance needs.

The O&M plan shall detail the level of repairs needed to maintain the effectiveness and useful life of the practice.

For livestock operations, the O&M plan for heavy use areas shall be included as a part of the CNMP and shall address periodic removal and management of manure accumulations and contaminated runoff.

For livestock operations, the O&M plan shall contain a statement that the heavy use area shall not be used to house livestock, store feed, store manure, nor store or maintain machinery or equipment.

Conservation practices should be implemented that limit particulate matter emission into long-term maintenance plans.